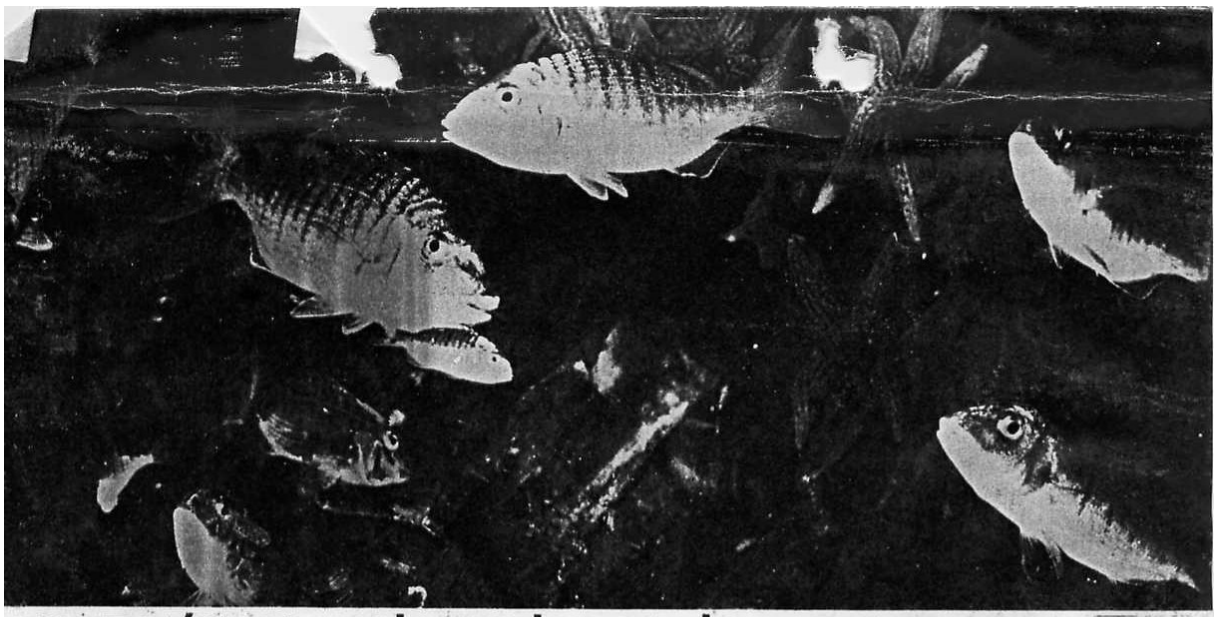

owner's manual marine engine

RC9D
RC11D

RENAULT marine COUACH

RENAULT marine COUACH

BP 3 - MARCHEPRIME-33380 BIGANOS - FRANCE

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r.c. Bordeaux 70 B 63 - nº d'entreprise : 206.33.009.2.003

RENAULT-MARINE COUACH takes great pleasure in presenting you this handbook. It has been published in both our interests and we advise you to read it carefully as soon as you receive your power unit.

The handbook will fully acquaint you with your marine engine and permit you to obtain maximum satisfaction from it.

Its contents cover all stages in the operation of the engine and recommendations for laying it up for the winter. You can also tune and adjust the engine and above all, avoid operating troubles by following the instructions and recommendations concerning systematic or individual maintenance operations.

Your distributor will have provided you with the Guarantee Card which permits you to follow up the various recommended service and inspection sequences.

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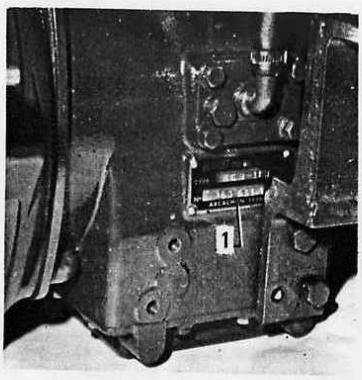
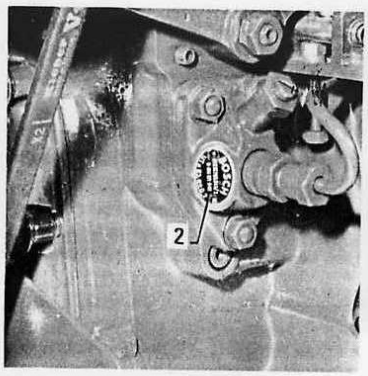
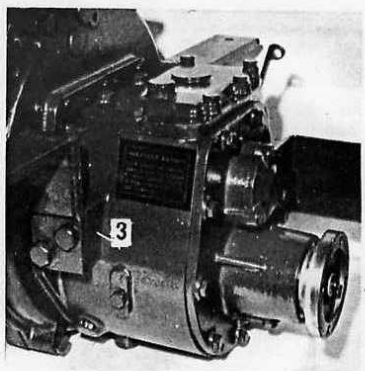
IDENTIFICATION MARKINGS



Engine number



Injection pump number



Gear box number

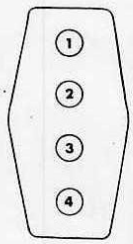
When ordering spare parts or entering into correspondence, Always quote the identification markings as illustrated above.

GENERAL SPECIFICATIONS

	RC 9 D	RC 11 D
Basic engine	Hatz 1 cylinder	Hatz 1 cylinder
Cylinder bore ins. (mm)	3.15 (80)	3.38 (82)
Stroke ins. (mm)	3.94 (100)	3.94 (100)
Capacity cu. ins. (c. c)	30.6 (502)	32.2 (528)
Compression ratio	1 : 23	1 : 23
Output	9 BHP at 2 500 Rpm	11 BHP at 3 000 Rpm
Oil sump capacity imp. Pts (litres)	3,5 (2)	3,5 (2)
Injection pump	BOSCH PFR 1 K 70/343/2	BOSCH PFR 1 K 70/343/2
Injector holder	BOSCH KBA 50 SD/26/4	BOSCH KBA 50 SD/26/4
Injector	BOSCH DNODS 21	BOSCH DNODS 21
Injector setting, ATS (kg/sq. cm)	106 (110)	106 (110)
Useful stroke (pump piston) ins. (mm)	058 (1.47)	058 (1.47)
Dynastarter temperature (max.) °F (°C)	194 (90)	194 (90)
Maximum capacity of the battery (with dynastarter) Amp.	50	50
Valve clearances when hot ins. (mm)	0.012 (0.3)	0.012 (0.3)
" " when cold ins. (mm)	0.016 (0.4)	0.016 (0.4)
Injection advance	15°	15°
Piston clearance ins.	0.31 to 0.35	0.31 to 0.35
mm	0.80 to 0.90	0.80 to 0.90

OPERATING THE ENGINE

CONTROL PANEL



1. Ignition switch
2. Starter button
3. Battery charge warning light
4. Stop control

BEFORE START–UP

It is essential to ensure that sea-water is reaching the sea-waterpump normally. Consequently never start the engine with the sea-cock shut, nor when the boat is out of the water.

Check that :

a) The sea-cock is open
b) The suel-supply tap is open (it is advisable to shut this tap only in case of necessity)
c) The engine and gear oil levels are correct (see "Maintenance" section of this manual)
d) The fuel-oil system is correctly bled (see "Maintenance" section)
e) The battery switches are on
f) The reverse-gear control is in neutral (the throttle being in idling position).

RUNNING–IN

The engines as delivered to our customers have already been partly run in at the factory. However the following running-in schedule should be adopted before running the engine under full load and speed conditions.

RC 9 D

The engine can be immediately operated at 2 300 Rpm for 3 hours. During that time, throttle up 5 mm to 2 500 Rpm. Repeat sequence several times. Following this, the engine can be permanently run at 2 500 Rpm.

RC 11 D

The engine can be immediately operated at 2 500 Rpm for 3 hours. During that time throttle up 5 minutes to 2 750 Rpm. Repeat sequence several times.

Run the engine at 2 750 Rpm for the following 3 hours. During that time throttle up 5 minutes to 3 000 Rpm. Repeat sequence several times.

Following this, the engine can be permanently run at 3 000 Rpm.

AUTOMATIC DECOMPRESSOR

The engine is fitted with an automatic decompressor. It is necessary to operate the decompressor on either electrical or hand starting.

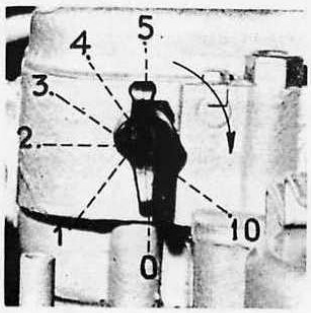


fig 1

The decompressor is located on the fuel injection pump side of the cylinder head.

– Position 0 : Normal running position.
– Position 1 : Position of permanent decompression.
– Position 2 : Position of automatic decompression where the decompression decreases gradually by passing successively through positions 3, 4, 5 etc..., up to 10 finishing at 0 being the normal running position.

IMPORTANT : Always turn the decompressor clokwise as shown in fig. 1, as an anticlockwise rotation could damage the mechanism. The single exception to this is that it is possible to turn from position 1 to position 0.

EXCESS FUEL DEVICE

When the ambient temperature is below 50°F (10°C) excess fuel injection will provide an easier starting.

Operate as follows :

1) Fully open throttle
2) Pull excess fuel device button (1) upwards (see fig. 2)
3) Set the throttle back to idling position.
4)Start the engine. The excess fuel device will automatically fade out.

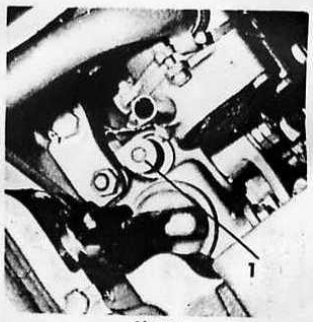


fig 2

STARTING AID
(For low ambient temperature)

This consists in introducing a fuel and oil mixture in the inlet manifold.

1) Clean around the immediate area of the filler plug.

fig 3

2) Remove filler plug (see fig. 3)
3) Pour in 2 c. c. s. of ELF PRESTIGRADE SAE 10 W/30 oil or local equivalent (In extremely cold conditions, 2 ccs consisting of half the above oil and half fuel).
4) Replace and tighten the plug
5) Start the engine normally.

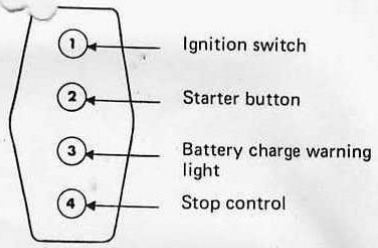
STARTING PROCEDURE

- Once starting preparation procedure is worked out, operate ignition switch (1). The battery charge warning light (3) will light up.
- Set throttle in halfway position.
- In cold weather operate excess fuel device.

Turn the automatic decompressor into position 1.

a) Hand starting using automatic decompressor

- Insert the starting handle
- Turn in an anti-clockwise direction (see fig. 4)
- Turn the engine over a few times until it turns freely.
- Put the decompressor in position 2 (being the automatic position).



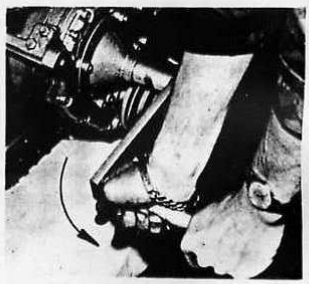


fig 4

- Continue turning reaching maximum speed as the decompressor reaches the 0 position, whereupon the engine should start.
- When the engine has started, the excess fuel button will automatically return to its initial position.

b) Starting with dynastarter

- Put the automatic decompressor in position 2.
- Press the starter button until the decompressor switch completes the circle to position 0' whereupon the engine should start.

Once the engine has started, ensure that :

1) the battery is charging (battery charge warning light off).
2) water is running out normally from the exhaust hull outlet.

N. B. Once this is checked, it is advisable to start manœuvering the boat ; this will bring the engine to the correct temperature. Then throttle up gradually.

c) Hand or electric start with manual decompressor

- Proceed exactly in the same manner as before with the starting preparation.
- Put the decompressor in position 1
- Press the starter button, or turn the starting handle with increasing r. p. m.
- As soon as maximum speed is reached turn the decompressor lever straight from position I to position 0, whereupon the engine should start.

STOPPING THE ENGINE

Never stop the engine by using the decompressor

1) Always bring the throttle back to idling position.
2) Pull the stop control.
3) Turn off the ignition switch.
4) Turn off the battery switch.

N. B. Before stopping the engine it is advisable to let it idle a few minutes in order to stabilize its temperature.

MAINTENANCE

ENGINE LUBRICATION

Suggested brand of oil : ELF PRESTIGRADE 10W/30 (or local equivalent).

Fill through cap A (see fig. 1) or through rocker cover. Wait about one minut so that the oil flows down fully into the sump.
Top up to the "max" mark on dipstick B (fig. 2) and not any higher as too high level causes overheating and loss of power.

Draining oil
Drain oil when engine is hot. To drain oil use the sump drain pump C (fig. 3).

AIR FILTER LUBRICATION

Suggested brand of oil : same as for engine.
Top up to the level mark on the detachable filter base (see fig. 4).

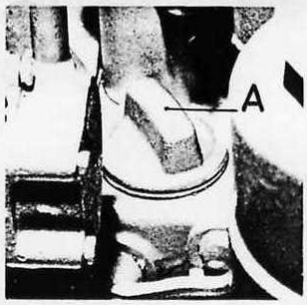


fig 1

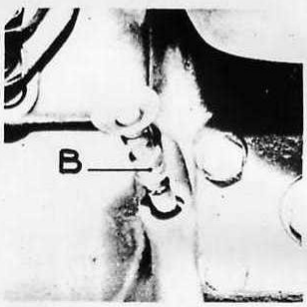


fig 2

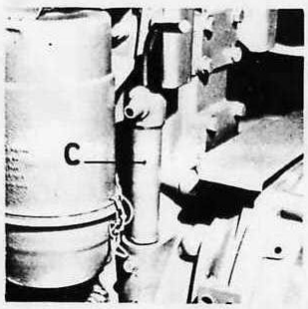


fig 3

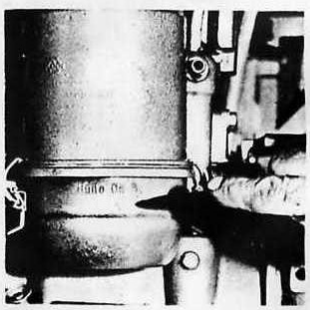


fig 4

ASSISTED TYPE GEARBOX LUBRICATION

Suggested brand of oil : ELF ELF-MATIC G or local equivalent.

The gearbox lubrication is independent of the engine's.
Gearbox capacity : 1.3 imp. Pt (.75 litre)

Filling

– Remove filler plug D and overflow plug E (fig. 1)
– Pour oil through filler D until it reaches overflow orifice E
– Screw back plugs D and E

Draining

– Remove filler plug D and drain plug F (fig. 2).

M 13 TYPE GEARBOX LUBRICATION

Reverse gear

Suggested brand of oil : same as for engine.
Gearbox capacity 1.75 imp. Pt (1 liter).
Pour oil through filler G. (fig.3)

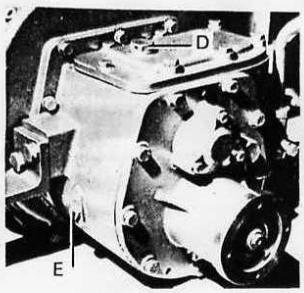


fig 1

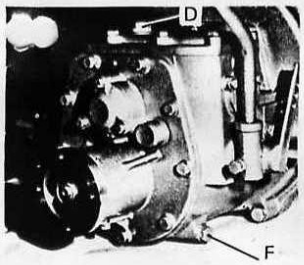


fig 2

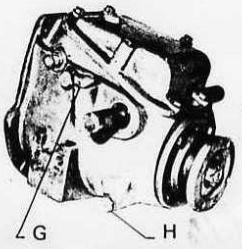
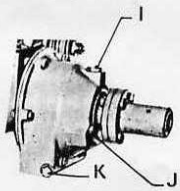


fig 3



Drain oil through drain orifice H. The "MIN" and "MAX" marks of the dipstick are valid for engine inclinations from 0 to 12°.
The "MAX" mark corresponds to a 12° inclination.

Reduction gear

Suggested brand of oil : TRANSELF 90 EP or local equivalent.
Capacity 0.9 imp. Pt (0.5 liter).
– Unscrew plugs I and J.
– Pour oil through filler I until it reaches overflow orifice J (whatever the engine inclination).
– Screw back plugs I and J.
– To drain oil, remove plug K.

PERIODICAL MAINTENANCE

After the first 25 hours running, have your engine serviced by a R. m. C dealer for :

- Engine oil draining
- Reverse gear oil draining
- Tightening cylinder head retaining bolts
- Adjusting valve clearances.

– Every day :

- Check oil level

– Every week :

- Check the electrolyte level in the battery

– Every 50 running hours :

- Drain the engine oil
- Adjust belt tensions if necessary

– Every 100 running hours :

- Change the fuel filter cartridge

– Every 200 running hours :

- Drain the gearbox oil
- Drain the air-filter oil

CHANGING THE FUEL FILTER ELEMENT

Always empty the fuel tank before changing elements.

- Unscrew the fuel supply pipe from the tank.
- Withdraw the filter from the tank by removing the 4 retaining screws (fig. 1).
- Unscrew the hexagonal nut and take the element out of the filter.
- Fit a new element and screw back the hexagonal nut.
- Replace the filter in the tank, tightening the 4 screws accordingly.
- Fill the tank and bleed the air (see next page. Bleeding the fuel system)

N. B : Do not attempt to clean the element ; always replace it.

Part Nos • Element : 32114
• Seal : 32112

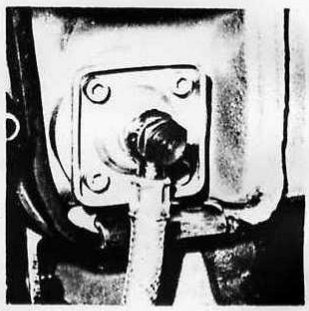


fig 1

BLEEDING THE FUEL SYSTEM

For model fitted with a built-in tank, pour fuel through filler G.

To bleed the fuel system operate as follows :

1) pull out the stop control

2) loosen screws 1 and 2 by a few turns

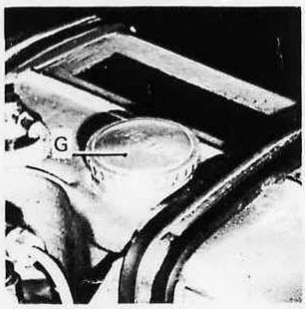
3) let the fuel run out until it flows free of air

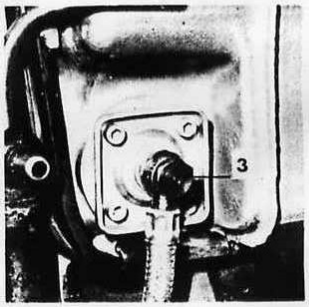
4) screw back plugs 1 and 2

5) unscrew bleed plug 3 on the fuel filter until the fuel flows free of air

6) screw back plug 3.

WARNING : It is essential to bleed the fuel system thoroughly as failure to do so will cause irregular running, difficult starting and loss of power. It may even sometimes be necessary to bleed the system a second time after the enfine has been running.





LAYING UP FOR WINTER

Afloat

Remember that sea-water freezes at approximately 21°F (–6°C).

1) Close the sea-water intake.

2) Disconnect the sea-weater pump pipes.

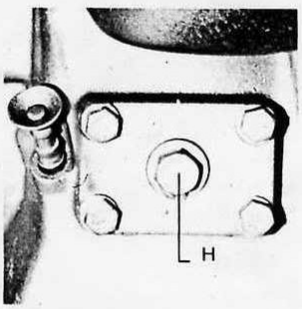
3) Rotate the engine a few turns with the starting handle so as to drain the water from the pump.

4) Drain sea-water from the cylinder blok by removing drain plug H (see fig.)

5) Remove the drain plug of the water-injection exhaust bend and the exhaust mufflet drain plug.

6) Tighten the stuffing-box so as to stop any oozing.

But DO NOT FORGET to re-adjust it when getting the engine ready again after laying-up. (The shaft must turn freely).



Ashore :

1) Remove the sea water intake piping.

2) Fit a fresh water feed pipe on the sea-water cooling circuit.

3) Drain engine oil.

4) Fill engine with storage oil (ELF STORAGE or local equivalent).

5) Start the engine and run it at high idling speed for half an hour.

6) Stop the engine and drain the storage oil.

7) Drain water from the cylinder block by fully removing drain plug H and water inlet pipe in the rear part of the cylinder block.

8) Disconnect the water pump pipes and rotate engine with starting handle so as to drain water from the pump.

9) Drain the water injection exhaust bend and the water cooled silencer.

10) Block up the inlet and exhaust openings with clean oily rags.

11) Disconnect the battery and leave it with an electrician for proper maintenance.

12) Use the laying-up period to remove the electrical equipment and have it checked in the meantime (generator, regulator, starter).

13) Drain the fuel tank so as to eliminate water and any deposits.

14) Change the fuel filter element.

15) Protect the engine and panel connections with a spray.

N. B. Mixing the little storage oil left in the engine with the normally used oil is not harmful.

TIMING AND SETTINGS

ADJUSTING ASSISTED TYPE GEARBOX

Principle :

The gearbox works on the cone-clutch principle. The axial thrust of the propeller assures a positive interlocking between the male and female cones of the clutch, both in forward and reverse gear.
As a result for this, the propeller shaft slides approximately 0.16" (4 mm) in forward drive position and the same in reverse drive position.

When installing the engine, ensure the propeller shaft slides easily in its bearings and stuffing-box, so that its axial movement is not hindered.

This eliminates the need for any thrust bearing in the shaft line other than that in the gearbox.

The only adjustment necessary in the gearbox, consists in positioning the two male cones in relation to the two female cones.

Procedure :

- Remove gearbox cover.
- Put the clutch lever in neutral position.
- Loosen the two nuts (size 17.)
- Loosen the two Allen screws.
- Slide the control fork on its axis so as to centre the two male cones in relation to the two female cones.
- In this position, lock the two Allen screws and nuts.
- Replace the gearbox cover.

ADJUSTING M 13 TYPE GEARBOX

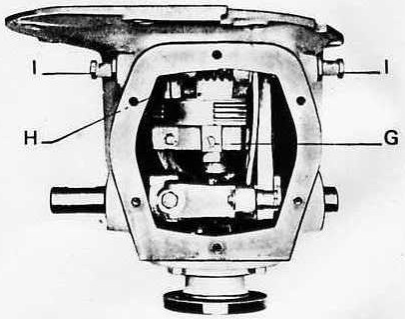
With a disc type reverse gear, the clutch may sometimes slip towards the end of the running-in period. This can be detected if the engine suddenly races when on full throttle or when accelerating.

FORWARD GEAR ADJUSTMENT

- Remove gearbox cover.
- Rotate shaft till locking screw G shows on top.
- Set gear lever in reverse position.
- Free the lock-washer, unscrew the locking screw G until the castellated adjusting nut is freed.
- Tighten castellated nut by one or several notches till you feel a normal stiffness on letting in the gear.
- Tighten locking screw in one of the notches.
- Replace the lock-washer.
- Replace the cover.

REVERSE GEAR ADJUSTEMENT

- Remove the gearbox cover
- Set gear lever in "forward" position.
- With a punch or a bent rod dia. 6 mm (o.24 ins.), tighten nut H by one or several notches. After each notch, try to engage reverse gear.

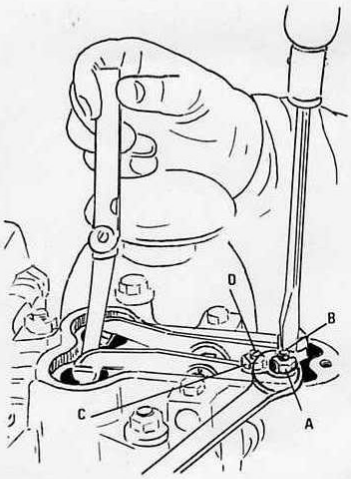


Important

After setting, make sure that the shaftline still turns freely in neutral. Check the two stop screws of the collar 1. Leave a clearance of .1 to .2 mm (.004 to .008 ins) between collar and screws.

DECOMPRESSOR ADJUSTMENT

The decompressor must be adjusted before valve clearances adjustment. Turn the engine until it is just at the beginning of compression. Put the decompressor into position 2 Slacken nut (C) (fig.). and tighten the adjusting screw (D) until the rocker arm just touches the valve stem, then turn the adjusting screw (D) a quarter of a turn (90°) and lock by tightening nut (C).



ADJUSTING VALVE CLEARANCES

Valve clearance :
- when cold .016" (.4mm)
- when hot .012" (.3mm)

Adjust the decompressor first.
The engine being under compression, turn on the decompressor lever clockwise up to the 0 position.

Adjust valves then :

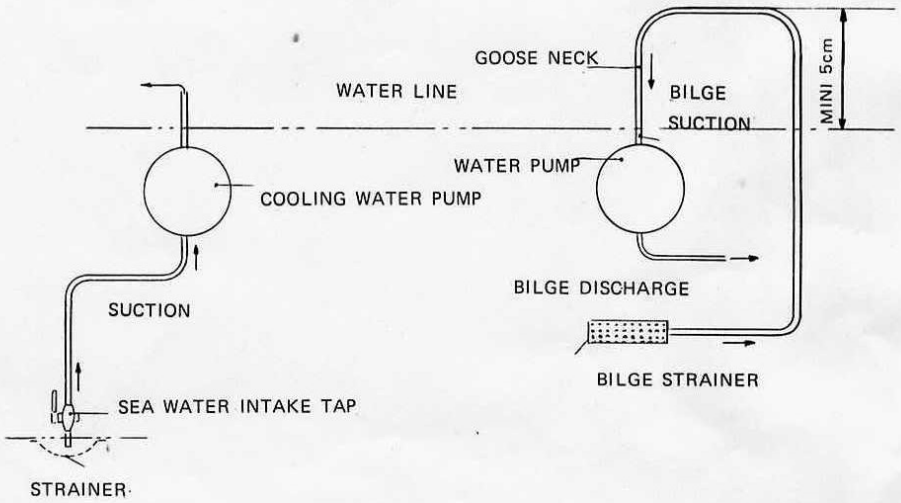
1) Loosen the rocker lever stop screw (A)

2) Turn screw (B) so that it lightly touches the rocker lever.

3) Loosen screw (B) by a quarter of a turn.

4) Tighten stop screw (A).

WATER PUMP INSTALLATION



Very important : The suction pipe of the bilge pump MUST be fitted with a goose neck 5 cm. at least above the waterline.

TIGHTENING TORQUES

	ft/lbs	Mkg	
Cylinder head studs	22	3	
Cylinder head nuts	58	8	
Connecting rod bolt	43	6	
Counterweight screw	65	9	
Push rod nut	43	6	
Crankshaft distribution end bolt	80	11	
Injector holder retaining screw	7 to 11.5	1 to 1.6	(Never tighten Further)
Delivery valve of injection pump	29	4	
Ring nut for splasher	36 to 39	5 to 5,5	

RECTIFYING MINOR FAULTS

A faulty injector may cause various trouble such as bad combustion, black exhaust smoke, poor performance or overheating of the cylinder-head, piston and cylinder. In such cases, have your injectors serviced by a Diesel mechanic.

Engine will not start :

Faulty fuel supply

- bleed the fuel system
- check that the fuel filter is not restricted, change element if necessary.

Engine has poor compression

Inadequate valve clearance

- Adjust valve clearance

Inadequate setting of decompressor

- Adjust decompressor.

Engine lacks performance

Excess oil in sump

- Drain down to "MAX" mark

Throttle does not fully open

- Adjust cable to lever

Restricted fuel filter

- Change filter element

Air in the fuel system

- Bleed the fuel system.

WIRING DIAGRAM

1	Battery switch	88 304	6	Battery charge warning light	48 200 174
2	Starter	48 200 226			
3	Regulator	48 200 109			
4	Ignition switch	96 015	7	Stop control 644 055	Wiring used, dia 5 mm. ——
5	Starter button	48 200 088	8	Panel 645 200 012	Wiring used, dia 2 mm. ——